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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,158	02/04/2004	Hiroshi Kawazoe	04012	9121

23338 7590 04/07/2005

DENNISON, SCHULTZ, DOUGHERTY & MACDONALD  
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SUITE 105  
ALEXANDRIA, VA 22314

EXAMINER

KIM, CHRISTOPHER S

ART UNIT PAPER NUMBER

3752

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/771,158

Applicant(s)

KAWAZOE ET AL.

Examiner

Christopher S. Kim

Art Unit

3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 5-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The response filed January 31, 2005 is acknowledged.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "jet opening downstream channel has a region in which its diameter is substantially double the diameter of the jet opening" recited in claim 1 and similarly recited in claims 6-9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. Claims 6 and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "a diameter" in lines 3-4. It appears to be a double inclusion of the jet opening downstream channel diameter recited in claim 1.

Claim 8 recites the limitation "a diameter" in lines 3-4 and in line 5. Either or both recitations appear to be a double inclusion of the jet opening downstream channel diameter recited in claim 1.

Claim 9 recites the limitation "a diameter" in line 4 and in line 9. Either or both recitations appear to be a double inclusion of the jet opening downstream channel diameter recited in claim 1.

***Claim Rejections - 35 USC § 102***

5. Claims 1-4, 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Winter (5,314,122).

Winter discloses a fuel injector comprising: a fuel passage 4; a valve 15; a valve seat 8; a jet opening 9; a jet opening downstream channel 11.

6. Claims 1-6, 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang et al. (5,054,691).

Huang discloses a fuel injector comprising: a fuel passage 9; a valve 11; a valve seat 31, 32; a jet opening 34; a jet opening downstream channel 121.

***Claim Rejections - 35 USC § 103***

7. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ricco (6,059,205).

Ricco discloses a fuel injector comprising: a fuel passage 32; a valve 48; a valve seat 50; a jet opening 44; a jet opening downstream channel 38,36.

Ricco discloses the limitations of the claimed invention with the exception of the jet opening downstream channel 38 diameter being double the jet opening 44 diameter. Ricco discloses, in column 2, lines 50-52, that control chamber 38 has a calibrated discharge conduit 44. Doubling the diameter of chamber 38 to that of conduit 44 is a mere optimization of workable parameters. It would have been obvious to one having ordinary skill in the art at the time the invention was made to doubled the diameter of chamber 38 to that of opening 44, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Response to Arguments***

8. Applicant's arguments filed January 31, 2005 have been fully considered but they are not persuasive.

Applicant asserts that figures 1(a)-1(c) show the jet opening downstream channel having a region in which its diameter is substantially double the diameter of the jet opening. Applicant provides no fact to support his assertion. The figures fail to provide a scale or any indication which expresses that jet opening downstream channel having a region in which its diameter is substantially double the diameter of the jet opening. Finally, the specification fails to indicate that the drawings are drawn to scale.

Applicant argues that the prior art fails to disclose the jet opening downstream channel having a region in which its diameter is substantially double the diameter of the jet opening. Just as applicant asserts that his drawings show such a feature, the examiner too asserts that the drawings of the prior art show the jet opening downstream channel having a region where the diameter is "substantially" double the diameter of the jet opening.

Applicant argues that the prior art fails to provide a motivation to modify Ricco. Applicant also indicates that "the Examiner has provided no clue as to where support is found for the reasoning set forth as the motivation and suggestion for the rejection under Section 103." Paragraph 9 of the prior Office action, repeated as paragraph 7 above, clearly points to Ricco, column 2, lines 50-52, for the teaching of modifying conduit 44 for calibration purposes.

***Conclusion***

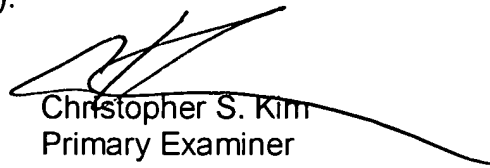
9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. Kim whose telephone number is (571) 272-4905. The examiner can normally be reached on Monday - Thursday, 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on (571) 272-4919. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher S. Kim  
Primary Examiner  
Art Unit 3752

CK